Chloé Lahondère

Thermal Biology, Eco-Physiology and Neuroethology of Disease Vector Insects

Assistant Professor Department of Biochemistry – Virginia Tech 1015 Life Science Circle – 381 Steger Hall – Blacksburg VA 24060, USA Website: <u>https://www.chloelahondere.com/</u>

EDUCATION

2009-2012	PhD Thesis in <i>Life Sciences – Entomology</i> University François Rabelais, Tours, France (<i>With highest honors</i>)
2008-2009	<i>Master of Science degree:</i> MASTER 2 nd year in <i>Insect Science</i> University François Rabelais, Tours, France (<i>Rank: 1/35, with honors</i>)
2007-2008	MASTER 1 st year in <i>Population Biology</i> University François Rabelais, Tours, France (<i>Rank: 3/35, with honors</i>)
2004-2007	Bachelor of Science: LICENCE in Integrative & Evolutive Biology University François Rabelais, Tours, France (With honors)

RESEARCH POSITIONS and EXPERIENCES

2020-present	Assistant Professor - Dept. of Biochemistry, Virginia Tech, Blacksburg, USA
_	Affiliated Faculty Fralin Life Sciences Institute (2017-present)
	Affiliated Faculty Global Change Center (2018-present)
	Affiliated Faculty BIOTRANS program (2018-present)
	Affiliated Faculty Dept. of Entomology (2020-present)
	Affiliated Faculty CeZAP (2020-present)
2017-2020	Research Assistant Professor - Dept. of Biochemistry, Virginia Tech, Blacksburg, USA
2014-2017	Research Associate
	Advised by Jeffrey Riffell - Dept. of Biology, University of Washington, Seattle USA
06-07 2014	Research Assistant
	Advised by Lauren Buckley - Dept. of Biology, University of Washington, Seattle USA
01-04 2013	Visiting Scholar
	Advised by Jeffrey Riffell - Dept. of Biology, University of Washington, Seattle USA
2009-2012	Graduate Researcher (PhD degree)
	Advised by Claudio Lazzari - University François Rabelais, Tours, France
2008-2009	Graduate Researcher (MSc degree)
	Advised by Claudio Lazzari - Université François Rabelais, Tours, France
2007	Undergraduate Researcher (BSc degree)
	Advised by Michael Greenfield - Université François Rabelais, Tours, France

PUBLICATIONS (*: undergraduate student **: graduate student)

Under review / in revision / preprints

- 19- Wolff G.H., Lahondère C., Vinauger C. and J.A. Riffell. Neuromodulation and Differential Learning Across Mosquito Species. (*in revision*). *BioRxiv*, 755017.
- 18- Lahondère C., Buradino M.** and Lazzari C.R. (2019). Thermoregulation in *Rhodnius prolixus*: heart activity and heterothermy. (*in revision*) *BioRxiv*, 685305.

Peer-reviewed

- 17- Lazzari C.R., Fauquet A.**, Lahondère C., Pereira M.H. and R. Araujo. (in press) Ticks perform evaporative cooling during blood-feeding (*under review Journal of Insect physiology*). Journal of Insect Physiology, BioRxiv:180968.
- 16- Lahondère C. (2021). A step-by-step guide to mosquito electroantennography. JOVE.
- 15- Bates T.A, Chuong C., Marano J., Waldman A., Klinger A., Reinhold J.M.**, **Lahondère C.** and J. Weger. (2021). American *Aedes japonicus japonicus, Culex pipiens pipiens*, and *Culex restuans* mosquitoes have limited transmission capacity for a recent isolate of Usutu virus. 555: 64-70. *Virology*.
- 14- Reinhold J.M.**, Shaw R.* and Lahondère C. (2021). Beat the heat: *Culex quinquefasciatus* regulates its body temperature during blood-feeding. 96: 102826. *Journal of Thermal Biology*.
- 13- Chandrasegaran K., Lahondère C., Escobar L.E. and Vinauger C. Mosquito ecology, behavior, and disease transmission. (2020). 36(4): 393-403. *Trends in Parasitology*.
- 12- Lahondère C., C. Vinauger, R.P. Okubo, G. Wolff, J.K. Chan, O.S. Akbari, J.A. Riffell. (2020). The olfactory basis of orchid pollination by mosquitoes. *Proceedings of the National Academy of Sciences*. 201910589; DOI: 10.1073/pnas.1910589117.
- 11- Upshur I.F.**, Bose E.A*, Hart C.* and C. Lahondère. (2019). Temperature and sugar feeding effects on *Aedes aegypti* mosquitoes' activity *Insects*. 10(10): 347.
- 10- Afify A., Betz J.F., Riabinina O., C. Lahondère, C.J. Potter. (2019). Commonly used insect repellents hide human odors from *Anopheles* mosquitoes. *Current Biology*. 29:1-12.
- 9- Benoit J.B., Lazzari C.R., Denlinger D.L. and C. Lahondère. (2019). Thermoprotective adaptations are critical for arthropods feeding on warm-blooded hosts. *Current Opinion in Insect Science*. (34):7-11. *Recommended by the F1000*.
- 8- Reinhold J.**, Lazzari C.R. and C. Lahondère. (2018). Effects of temperature on Aedes aegypti and Aedes albopictus: a review. *Insects* 9(4), 158.
- 7- Lazzari C.R., Fauquet A.** and Lahondère C. (2018). Keeping cool: kissing bugs avoid cannibalism thermoregulating. *Journal of Insect Physiology*. (107):29–33.
- 6- Vinauger C.+, C. Lahondère+, G.H. Wolf, L.T. Locke*, J.E. Liaw*, J.Z. Parrish, O.S. Akbari, M.H. Dickinson and J.A. Riffell (2017). Dopamine modulation of host learning in *Aedes aegypti* mosquitoes. *Current Biology*. 28(333–344). (+: co first authorship)
- 5- Lahondère C., Insausti T., Paim RMM, Luan X., Belev G., Pereira M.H., Ianowski J.P. and C.R. Lazzari (2017). Countercurrent heat exchange and thermoregulation during blood-feeding in kissing bugs. *eLife*. 2017; 6:e26107.
- 4- Lutz E.K.**, Lahondère C., Vinauger, C. and J.A. Riffell (2017). Olfactory learning and chemical ecology of olfaction in disease vector mosquitoes: A life history perspective. *Current Opinion in Insect Science*. 20:75-83.
- 3- Vinauger C., Lahondère C., Cohuet A., Lazzari C.R. and J.A. Riffell (2016). Learning and memory in disease vector insects. *Trends in Parasitology*. 32(10):761–771.
- 2- Lahondère C. and C.R. Lazzari (2015). Thermal effect of blood feeding in the telmophagous fly *Glossina* morsitans morsitans. Journal of Thermal Biology. 48:45-50.
- 1- Lahondère C. and C.R. Lazzari (2012). Mosquitoes cool down during blood feeding to avoid overheating, *Current Biology*, 22(1): 40-45. *Recommended by the F1000*.

Book Chapter:

- Pereira M.H., Paim R.M.M., Lahondère C. and C.R. Lazzari (2017). Heat shock proteins and blood-feeding in arthropods. *In*: Asea A., Kaur P. (eds) Heat Shock Proteins in Veterinary Medicine and Sciences. Heat Shock Proteins, vol 12. Springer.
- Lahondère C. and C.R. Lazzari (2013). Thermal stress and thermoregulation *in Anopheles* mosquitoes New insights into malaria vectors, *ed.* Sylvie Manguin. ISBN 980-953-307-550-6.

FUNDINGS, HONORS and AWARDS

2020 Department of Biochemistry Service / Outreach Award nominee		
Board of Reviewers – MDPI Insects		2020
NSF REU-site (Role: Senior Personel)	\$371,154 2	2020-2023
F1000 recommendation for Current Opinion in Insect Science paper		2019
Sigma Xi - The Scientific Research Honor Society - Full membership		2019
eLife Travel grant	\$1,000	2019
The Fralin Life Science Institute	\$10,000	2019
Global Change Center ISCE - Fralin Institute. (Role: PI)	\$17,300	2018-19
MicroFEWHS – Fralin Institute (<i>Role</i> : PI)	\$3,500	2018-19
The Eppley Foundation for Research (<i>Role</i> : PI)	\$23,097	2018-19
2018 Department of Biochemistry Research Award		2018
Margaret Walton Fellowship for Mountain Lake	\$493	2018
"Best presentation" award - UWPA research symposium		2016
University of Washington, Department of Biology Travel Grant	\$1,000	2016
University of Washington Undergraduate Research Mentor Nominee		2016
University of Washington Undergraduate Research Mentor Nominee		2015
The Journal of Experimental Biology Travelling Fellowship	£2,300	2012
Bed bugs physiology and behavior research (<i>Role</i> : Co- PI)	8000€	2012
Research and career development grant from IRBI / CNRS Tours, France	600€	2012
F1000 recommendation for 2012 Current Biology paper		2012
"Centenary Medal"		2009
International Symposium on the Centenary of the Discovery of Chagas Disease. Rio de J	aneiro. Brazil	

International Symposium on the Centenary of the Discovery of Chagas Disease, Rio de Janeiro, Brazil

INVITED TALKS and PRESENTATIONS (*O: oral presentation P: poster*) – *does not highlight contributed talks*

<u>2021</u>

Lahondère C. In cold-blood: deciphering the mechanisms underlying mosquito-frog interactions (O) OARDC meeting: Integrative mosquito biology: from molecules to ecosystems, Wooster, OH, USA (Cancelled in May 2020 due to COVID 19 - Rescheduled for May 2021 – invited talk).

<u>2020</u>

Lahondère C. In cold-blood: deciphering the mechanisms underlying mosquito-frog interactions (O) OARDC meeting: Integrative mosquito biology: from molecules to ecosystems, Wooster, OH, USA (Cancelled in May 2020 due to COVID 19 - Rescheduled for May 2021 – invited talk).

Lahondère C. The sweet tooth of mosquitoes: leveraging knowledge on sugar feeding for their control (O). *VTLSS* Seminar series, Blacksburg, VA, USA (October 9^{th} – invited talk)

Lahondère C. Mosquito eco-physiology and thermal biology at Virginia Tech (O). *Bennett College Seminar Series,* (*November* 12^{th} – *invited talk*)

<u>2019</u>

Lahondère C. Eco-physiology and neuro-ethology of disease vector insects (O). Entomology Departmental Seminar series, Blacksburg, VA, USA (March 28th – invited talk)

Lahondère C., Hanlon R. and D. Schmale. Development of an unmanned aircraft system (UAS) to collect mosquitoes from remote areas. 2019 Micro FEWHS mini symposium, Blacksburg, VA, USA (May 6^{th} – invited talk).

Lahondère C. Eco-physiology and neuro-ethology of disease vector insects (O) Le Studium Conference: New avenues for the behavioral manipulation of disease vectors, Tours, France (May 22^{nd} – invited talk)

Lahondère C. Climate change and the dynamics of mosquito populations in Virginia (O) *Carilion Climate Change Conference, Roanoke, VA, USA (October 5th – invited talk)*

Lahondère C. "Some like it hot"... and sweet (O) Seminar series, JMU, VA, USA (October 25th – invited talk)

Lahondère C. From pollinator to disease vector: a journey through the life of mosquitoes (O) *Promotion Seminar*, *Department of Biochemistry, Virginia Tech, Blacksburg, VA, USA (November* 7^{th} – *invited talk)*

Upshur I., Bose E., Hart C. and Lahondère C. Temperature and sugar feeding effects on *Aedes aegypti* mosquitoes' activity (O) *Entomological Society of America, Saint Louis, MO, USA (November)* (+ 3 student presentations)

<u>2018</u>

Lahondère C. Eco-physiology and neuro-ethology of disease vector insects (O) OARDC meeting: Integrative mosquito biology: from molecules to ecosystems, Wooster, OH, USA (April 13th – invited talk)

Lahondère C. Eco-physiology and neuro-ethology of disease vector insects (O) *Mountain Lake Biological Station* seminar, Pembroke, VA, USA (June 5th – invited talk)

Lahondère C. Effects of temperature on olfactory behavior in mosquitoes (O) *ECRO XXVIII Congress, Würzburg* - *Germany (September 8th– invited talk)*

Lahondère C. Some like it hot: thermal biology of disease vector insects (O) *Entomology 2018, ESA's 66th Annual Meeting, Vancouver, BC, Canada (November 14th – invited talk)*

<u>2017</u>

Lahondère C. Thermal Biology of disease vector insects (O) *Biochemistry Departmental Seminar, Virginia Tech,* Blacksburg, VA, USA (July 20th – invited talk)

Lahondère C., Vinauger C., Okubo R. and J.A. Riffell. Orchid pollination by snow mosquitoes (O) *Entomology* 2017, ESA's 65th Annual Meeting, Denver, CO, USA

Lahondère C., Liaw J.E., Tobin K., Joiner J.M., Vinauger C. and J.A. Riffell. Effect of temperature on olfactory behavior in mosquitoes (Highlighted P) *Entomology 2017, ESA's 65th Annual Meeting, Denver, CO, USA*

Lahondère C. Effect of temperature on olfactory behavior in mosquitoes (O) *Post-doctoral Symposium – Seattle, WA, USA*

<u>2016</u>

Lahondère C. What makes mosquitoes attracted to *Platanthera* orchids? (O) *UWPA Annual Symposium 2016 - Seattle, WA, USA*

Lahondère C., Vinauger C., Okubo R. & J.A. Riffell. The pollination ecology of *Platanthera* orchids by snow mosquitoes (O) *ICE 2016 – XXV International Congress of Entomology, Orlando, FL, USA*

Vinauger C., Lahondère C., Locke L.T, Liaw J.E. & J.A. Riffell. Aversive learning in the disease vector mosquito Aedes aegypti (O) ICE 2016 – XXV International Congress of Entomology, Orlando, FL, USA

Liaw J.E., Lahondère C., Vinauger C. & J.A. Riffell. Aversive learning in *Aedes aegypti* mosquitoes (O) 19th Annual Undergraduate Research Symposium, Seattle, WA, USA

Lahondère C., Vinauger C., Wolff G., Locke L.T., Liaw J.E., Parrish J.Z., Akbari O., Dickinson M.H. & J.A. Riffell. Neuromodulation of olfactory learning in *Aedes aegypti* mosquitoes (P) *NIFTI (Nature Inspired Flight Technologies and Ideas) – SOAR meeting, Baltimore, MA, USA*

Lahondère C. What makes mosquitoes attracted to *Platanthera* orchids? (O) *Post-doctoral Symposium – PechaKucha, Seattle, WA, USA*

Lahondère C., Vinauger C., Okubo R. & J.A. Riffell. What makes mosquitoes attracted to *Platanthera* orchids? (P) *SICB Annual Meeting, Portland, OR, USA*

C. Vinauger, Lahondère C., Lutz E.K., Locke L.T & J.A. Riffell. Olfactory learning in the vector mosquito Aedes aegypti (O) SICB Annual Meeting, Portland, OR, USA

<u>2015</u>

Liaw J.E., Lahondère C., Vinauger C. & J.A. Riffell. Exploring learning abilities of disease vector mosquitoes (P) 18th Annual Undergraduate Research Symposium, Seattle, WA, USA

Joiner J., Lahondère C., & J.A. Riffell. Mosquito olfaction: effects of ambient temperature (P) 18th Annual Undergraduate Research Symposium, Seattle, WA, USA

<u>2014</u>

Lahondère C., Insausti T., Ianowski J. & C.R. Lazzari. Keeping cool: Thermoregulation during feeding in kissing bugs (O, invited presentation). *Entomology 2014, ESA's 62nd Annual Meeting, Portland, OR, USA*

<u>2013</u>

Lahondère, C. Thermal stress and thermoregulation in haematophagous insects (O) Max Planck Institute of Neurobiology, Martinsreid, Germany

<u>2012</u>

Lahondère, C. Thermal stress and thermoregulation in haematophagous insects (O) "Kikikose", Tours, France

Lahondère, C. Thermal stress and thermoregulation in haematophagous insects (O) University of Washington, Seattle, WA, USA

<u>2011</u>

Lahondère, C. Rocking behavior in Phasmatodea (P) Colloque SFECA (Société Française pour l'Etude du Comportement Animal), Tours, France

Fresquet N., Lahondère C. & C.R. Lazzari. Modulation de la réponse d'extension du proboscis par l'interaction des températures de la cible et de l'environnement chez un insecte hématophage (P) *Colloque SFECA (Société Française pour l'Etude du Comportement Animal), Tours, France*

Fresquet N., Lahondère C. & C.R. Lazzari. Role of the thermal background on the response to heat in *Rhodnius* prolixus (P) The Sixth International Symposium on Molecular Insect Science, Amsterdam, the Netherlands

Lahondère C., Insausti T. & C.R. Lazzari. Handling of thermal stress associated with feeding in haematophagous insects (O + P) *European PhD Network « Insect Science » Tours, France*

<u>2010</u>

Lahondère, C. & C.R. Lazzari. Stress thermique et thermorégulation chez les insectes hématophages (P) 16ème Colloque de Biologie de l'Insecte, Lyon, France

Lahondère, C. & C.R. Lazzari. Thermal stress and thermoregulation in haematophagous insects (P) Sensory Ecology: an international course for postgraduate students. Lund, Sweden

<u>2009</u>

Lahondère, C. How haematophagous insects avoid excessive heating during feeding? (O) INRA Versailles, France

Lazzari, C.R., Lahondère, C., Amino, R. & T.C. Insausti. Keeping cool: how blood-sucking insects avoid excessive warming during feeding. (P) *International Symposium on the Centenary of the Discovery of Chagas Disease, Rio de Janeiro, Brazil*

Lahondère, C. Stress thermique et thermorégulation chez les insectes hématophages (O) Journée de l'IRBI (annual meeting), Tours, France

STUDENTS and POST-DOC MENTORING (current lab members in bold)

2021-present	Anaïs Tallon (Post-doc, Virginia Tech)
2021-present	Silvère Giraud (MSc student, Université de Tours, France)
2021-present	Darren Dougharty (Lab Tech, Virginia Tech)
2020-present	Ashlynn VanWinkle (Biochemistry BS student, Virginia Tech)
2020-present	Forde Upshur (PhD student, Virginia Tech)
2019-present	Lauren Fryzlewicz (BS-MSc student, Virginia Tech)
2019-present	Morgen VanderGiessen (MSc student, Virginia Tech) Co-mentored with C. Vinauger
2018-present	Joanna Reinhold (PhD student, Virginia Tech)
2018-2020	Forde Upshur (MSc student, Virginia Tech)
2019-2020	Aley Savory (Chemical engineering BS student, Virginia Tech)
2019-2020	Ryan Shaw (Biology BS student, Virginia Tech)
2018-2020	Sarah Tartabini (BioChem student, Virginia Tech)
2015-2019	Ryo Okubo (PhD student, UW Biology, Seattle)
2018-2019	Elizabeth Bose (BioChem and Clinical Neuroscience student, Virginia Tech)
2018-2019	Cameron Hart (BioChem student, Virginia Tech)
2016-2017	Kennedy Tobin (Neurobio undergrad student, UW Biology, Seattle)
2015-2017	Korosh Moosavi (BioChem undergrad student, UW Biology, Seattle)
2015-2017	Assel Shardarbekova (Neurobio undergrad student, UW Biology, Seattle)
2014-2017	Jessica E. Liaw (Bio undergrad student, UW Biology, Seattle)
2014-2016	Lauren T. Locke (Neurobio undergrad student, UW Biology, Seattle)
2014-2015	Jillian M. Joiner (Bio undergrad student, UW Biology, Seattle)
2012	Cindy Laurence (B.Sc. level: Licence 3 rd year, IRBI, Tours)
2010-2011	Maurane Buradino (B.Sc. level: Licence 3 rd year and M.Sc. level: Master 1 st year, IRBI Tours)

GRADUATE COMMITTEES (current in bold)

Lindsey Faw (PhD student - Entomology, Advisor: Gillian Eastwood)
Tam NGuyen (PhD student - Biochemistry, Advisor: Daniel Slade)
Amadou Sékou Traoré (PhD student – AgroParisTech, Advisor: Frédéric Simard) – Thesis
Rapporteur
Tahmina Ahmed (PhD student - Biochemistry, Advisor: Jinsong Zhu)
Morgen VanderGiessen (MSc student, Biochemistry) Co-mentored with C. Vinauger
Lauren Fryzlewicz (BS-MSc student, Biochemistry - Committee Chair)
Morgan Roth (PhD student – Entomology – Advisor: Aaron Gross)
Caitlin Cridland (PhD student - Biochemistry - Advisor: Glenda gillaspy) - Prelim Committee
Chair
Nicole Wynne (PhD student – Biochemistry – Advisor: Clément Vinauger)
Joanna Reinhold (PhD student - Biochemistry - Committee Chair)
Forde Upshur (MSc & PhD student- Biochemistry - Committee Chair)
Megan Richardson (PhD student - Biochemistry - Advisor: Jinsong Zhu)
Chris Yoo (MSc student - Biochemistry - Advisor: Daniel Slade)

TEACHING EXPERIENCE

2021	Biochem 2987 (lab course)
2020	Biochem 2024 (guest lecture)
2020	Medical Entomology - France (guest lecture)
2019	Medical Parasitology - University of Cincinnati (guest lecture)
2019	Biochem 2024 (guest lecture)

- 2019 Biochemical Communication (guest lecture)
- 2018 Disease Ecology & Ecosystem Management, FiW 3414 (guest lecture)
- 2016 Chemical Communication (Instructor of record)
- 2012 Ecology (4h) B.Sc. level: Licence 1st year
- 2012 Ecology-Ethology (62h) B.Sc. level: Licence 1st year
- 2011 Insects mounting (4h) *M.Sc. level: Master 2nd year*
- 2011 Behavioral Ecology (14h) *Master 1st year*
- 2011 Ecology-Ethology (25h) *B.Sc. level: Licence* 2nd year
- 2010 Neuroethology (4h) Master 1st year
- 2010 Animal Biology (12h) B.Sc. level: Licence 3rd year

PROFESSIONAL ACTIVITIES & SERVICE

2020-present	Member of the Review Editorial Board – Frontier in Insect Science
2020-present	Member of the Review Editorial Board – MDPI Insects
2020-present	Member of the Diversity and Inclusion Committee of ESA
2019-2020	Co-guest editor of a COIS section on Vector and medical and veterinary entomology
2019	Symposium co-organizer for the ESA Eastern Branch Meeting – March 2019 – Blacksburg VA
2018-present	Diversity and Inclusion Committee Chair for the Biochemistry Dept
2018	Ad hoc Reviewer for NSF CAREER award
2018	Co-guest editor of a special issue on mosquito biology and ecology for the journal Insects
2016-2017	Graduate Program Committee Post-doctoral representative
2014-present	Frontiers in Ecology and Evolution / Chemical Ecology Editorial board member
2012	Member of the administrative committee at the IRBI
2010-present	Reviewer for Bulletin of Entomological Research, Current Biology, Frontiers in Microbiology,
_	African Journal of Biotechnology, Frontiers in Public Health, PloS One, Journal of Insect
	Physiology, Insect Science, Biology Letters, Insects, Parasites and Vectors, Biologia, Plos NTDs,
	Medical and Veterinary Entomology, Royal Society Open Science, IJERPH, Chemoecology.
	Journal of Insect Science

OUTREACH (selected)

2020 Kids' Tech guest speaker
2019 MLBS open house
2019-present
2019-present
2019-present
2018-present
2018-prese

Professional memberships:

2019-present	AAAS
2019-present	Sigma Xi
2018-present	Virginia Mosquito Control Association
2014-present	Entomological Society of America
2014-present	Society of Integrative and Comparative Biology